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The Albion-Sheridan Landfill PRP Group

August 4, 1997

Mr. Jon Peterson
U.S. EPA - Region V
Waste Management Division
77 W. Jackson Blvd. - HSRW-6J
Chicago, IL 60604

Subject: Response to EPA Comments on Final Design
Albion-Sheridan Township Landfill
Project No. 6E13045

Dear Mr. Peterson:

On behalf of the Albion-Sheridan Township Landfill PRP Group (Group), the attached response has been prepared to address your comments on the Final Design Report for the Albion-Sheridan Township Landfill. The responses refer specifically to your letter dated June 11, 1997. The responses also include information obtained during conference calls with the EPA and MDEQ to clarify specific issues. Each EPA comment is shown in italics followed by the Group response.

The key points addressed in our response are highlighted below:

- **GSI Criteria and Additional Well Placement** - In accordance with the July 7, 1997 conference call with EPA, MDEQ and Woodward-Clyde, it was agreed that the GSI mixing zone determination would not be required as monitoring well results closest to the river do not exceed Generic GSI Criteria. Further, it was agreed that the two remaining monitoring wells initially intended for installation during the Pre-Design Studies, would be installed along Erie Road, 200 feet east and west of the MW16 cluster, respectively.

- **Landfill Gas Monitoring** - In accordance with the July 29, 1997 conference call with EPA, EarthTech and Woodward-Clyde, it was agreed that one landfill gas monitoring probe would be installed along each of the north, south, east and west property boundaries to monitor for lateral landfill gas migration. The probes will be monitored for percent Lower Explosive Limit on a quarterly basis for a period of two years and discontinued if exceedances are not encountered.

- **Perimeter Air Monitoring During Remedial Action** - The model health and safety plan has been modified to provide for perimeter air monitoring along the property line in the

event that air monitoring action levels are exceeded in the construction work area. The plan details the type of monitoring required, action levels and appropriate actions to be taken should an exceedance occur.

- **Drum Sampling Plan** - The Drum Sampling Plan was originally planned to be prepared by the construction contractor once the contractor was selected by the Group. Per our discussion with you, we have prepared the Drum Sampling Plan and will include it in the revised design documents to avoid delays associated with a second EPA review period once the contractor is selected.

- **Contract Documents** - It was agreed that "front end" (contractual/financial) bid documents are not required for submittal as part of the final design document. The "front end" bid documents will be included in the bid package to contractors once the project is bid.

The Group intends to submit the revised Final Design to EPA by August 15, 1997. If you should have any questions regarding this response, please feel free to contact me at (313) 464-1800.

Sincerely,

John Seymour, P.E.
Project Coordinator

RGG:rgg

cc: Mr. Jack Gray - Corning, Inc.
Mr. Chris Smith - Cooper Industries
Mr. Robert Gibson - Woodward-Clyde
Ms. Kim Sakowski - MDEQ
Ms. Elizabeth Bartz - EarthTech

RESPONSE TO EPA COMMENTS ON FINAL DESIGN

General EPA Comment 1

There is inconsistency between terminology throughout the document text, appendices, and design drawings with regard to the cover system. Please use consistent terminology (i.e. Flexible Membrane Liner = Geosynthetic Membrane = Geosynthetic Membrane Liner = Geomembrane.

Group Response: The term "flexible membrane liner (FML)" will be used throughout the design documents.

General EPA Comment 2

Groundwater - Surface Water Interface (GSI) Issues

The information provided by Woodward-Clyde after our May 27, 1997, conference call, was information already contained in the Pre-Design Studies Report. As already stated by MDEQ, it is necessary to either meet the Generic GSI criteria or request a mixing zone determination by MDEQ's Surface Water Quality Division (Operational Memorandum #17). The liable party group can also place wells closer to the river in hopes that natural attenuation and/or dilution would decrease contaminant levels that may be entering the river.

Group Response: A conference call was held between Robert Gibson (Woodward-Clyde), Jon Peterson (EPA) and Kim Sakowski (MDEQ) on July 7, 1997. Information was presented by Mr. Gibson illustrating that Generic GSI criteria were not exceeded in groundwater monitoring wells closest to the river. Ms. Sakowski and Mr. Peterson agreed that a mixing zone determination would not be required and no further information needed to be provided. Ms. Sakowski requested that the Group indicate that the change requested by MDEQ in monitoring well locations was made to monitor the GSI exeedances of arsenic and cadmium at MW06SB.

General EPA Comment 3

Monitoring Well Placement (MW09) Issue

The Final Design Report does not have information to support the assessment that all groundwater flowing south vents to the river. There is a small upward gradient at the MW-16 cluster. What is the upward gradient that Woodward-Clyde has calculated for this well cluster? The cluster is approximately 135 feet from the river and not immediately adjacent to the river. Given the gradient and the distance to the river, it may be unlikely that all groundwater flowing south will vent up to the river. According to the information Woodward-Clyde has provided, the vertical gradient is 0.14 ft/40 ft or 0.0035 ft/ft. Although it is very possible that the glacial aquifer and some bedrock aquifer groundwater vents, it is more likely that some groundwater flows to the other side of the river. The low concentration of arsenic in MW-13SG supports the probability the component of groundwater that flows south to the river does not completely vent to the river.

If Woodward-Clyde has evidence to prove or support that the groundwater flow is toward the river on the opposite or south side of the river, please provide it for agency review. If

Woodward-Clyde is unwilling or does not have the documentation to support their conclusion, it will be necessary to install MW-09 (#?) in the shallow or weathered bedrock on the south side of the river.

The cross-section Woodward-Clyde included in the design documents shows MW-13SG as a very shallow well, but with much geology beneath it. Does Woodward-Clyde have additional geologic or hydrogeologic information south of the river? How is the presence of arsenic in the well explained?

MDEQ would like to include clarification in the design report that the use of the on-site borrow source is pending, based on testing results. An alternative borrow source should be identified and available for use if the on-site borrow source is identified to contain an unusable quality of soil.

Group Response: During the July 7, 1997 conference call between Woodward-Clyde, EPA, and MDEQ it was agreed that the two remaining monitoring wells to be installed during the remedial action should be installed in the shallow bedrock, 200 feet east and 200 feet west of the MW16 cluster, respectively. This monitoring well placement was agreed to satisfactorily address issues raised by MDEQ. Specific responses to issues raised in this comment are provided below:

- The upward gradient calculated between the weathered and shallow bedrock for the MW16 cluster is 0.14 ft/ft. This information was presented previously in the Pre-Design Studies Report (Woodward-Clyde, November 1996) in Section 3.4.3 (Vertical Groundwater Flow Characteristics).
- The statement that arsenic was detected in MW13SG on the south side of the river is not accurate. The Pre-Design Studies Report (Table 4) indicates that arsenic was not detected in MW13SG during the pre-design study.
- The geologic cross section provided in the design documents was obtained from the Remedial Investigation (WW Engineering, April 1994), Figure 28. It appears that the original cross section author correlated the stratigraphy from the MW07 cluster to MW13SG.
- The design report will be modified to indicate that the use of on-site borrow soils is pending based on acceptability of test results.

Specific EPA Comments - Final Design

EPA Comment 1: *Page 2-4, Contingent Remedy, 2nd bullet: The SOW does not specify "in a residential well that existed on the day the ROD was signed....".*

Group Response: The SOW makes reference to "...a residential well that existed on the day the ROD was signed..." on page 7, second paragraph.

EPA Comment 2: *Table 3-1, ARARS Summary: Please specify the ARARs specific to landfill gas and landfill gas monitoring.*

Group Response: Table 3-1 references the state ARAR for landfill gas collection and control. A reference will be added for landfill gas monitoring.

EPA Comment 3: *Page 5-2, Technical Specifications: Please add the technical specifications detailed in the comments for Appendix E to this list.*

Group Response: This comment will be incorporated in the revised design submittal.

APPENDIX A DESIGN CALCULATIONS

EPA Comment 4: *The design calculations are conservative, yet reasonable. We have no comments on this appendix..*

Group Response: None required.

APPENDIX B PERFORMANCE MONITORING PLAN

EPA Comment 5: *Section 2, Drum Removal and Treatment Monitoring: At this point in the design, this section is inadequate.*

Page 2-1, 1st Paragraph: There is no "Contract Specification 02212." Either add or delete this reference. In addition, the Health and Safety portion of the Contract Specifications reference drum sampling and testing but do not provide any details. When the "Contractor" submits the "Drum Sampling and Testing Plan", this should be provided to U.S. EPA for comment and review. Failure to provide the "Drum Sampling and Testing Plan" in the 95% Design will delay the project.

Group Response: Technical Specification 02212 (Drum Removal and Disposal) was included in Appendix E immediately following 02211 (Waste Consolidation and Handling). The drum sampling and testing plan was originally intended to be a submittal requirement of the construction contractor. The Group does not desire any delay in the schedule and, as a result, will prepare the drum sampling and testing plan as part of the revised design submittal.

EPA Comment 6: *Page 2-1, Section 2.1 Performance Monitoring Requirements: The air monitoring requirements included in the Model Health and Safety Plan leaves much to the discretion of the SSO. This is unacceptable. Please review comments on Model Health and Safety Plan. When the "Contractor" submits the "Final Health and Safety Plan", this should be provided to the U.S. EPA for comment and review. Failure to provide the "Final Health and Safety Plan" in the 95% Design will delay the project.*

Group Response: The model health and safety plan presented in the design documents is very similar to the plan included in the Remedial Design Work Plan for Pre-Design field activities. The original model health and safety plan was reviewed and approved by EPA without comment.

The model health and safety plan will be modified to address the appropriate comments raised and submitted with the revised design documents.

EPA Comment 7: *Section 3 Landfill Cap Construction Monitoring: The air monitoring requirements included in the Model Health and Safety Plan leaves much to the discretion of the SSO. This is unacceptable. An HNu will not detect methane.*

Group Response: The HNu is used to measure VOCs in the working area and at the fenceline during cap construction. The model health and safety plan also identifies the use of a combustible gas indicator (CGI) to monitor for the presence of methane and other combustible gases as a percent of the lower explosive limit along with oxygen concentration.

EPA Comment 8: *Section 4 Landfill Gas Collection System Monitoring: Methane measurements of "two gas vent locations..." (which are incidentally not shown specifically on the design drawings) is not adequate to detect the lateral migration of methane gas through the subsurface. Given the following facts, a comprehensive landfill gas monitoring system is crucial:*

**the final grades slope to the northeast (towards the subdivision);*

**an extremely impermeable cover system will be installed;*

**the horizontal gas venting system does not extend to the base of the waste; and*

**the system is a passive system versus an active landfill gas venting system.*

In the "Final Design", please provide extensive details on a landfill gas monitoring system including specifications for landfill gas probes (design and installation), slip cap system with a tap to incorporate a hose barb for sampling, landfill gas spacing (suggest at 200 feet around the perimeter of the landfill - outside the waste material), sample parameters, method of sampling, sampling equipment, sample frequency (quarterly at a minimum to begin), etc.

Group Response: During the Pre-Design field investigations for the vertical and horizontal extents of waste, the waste body was noted as being in large part non-petrescible waste consisting of such inert materials as; cans, bottles, rubber and vinyl wastes, soil wastes and demolition debris. Moisture conditions of the waste most commonly noted were "dry" to "moist" with only an isolated area of "saturated waste" encountered. Dry waste consisting largely of inert materials does not have the methane generation potential as compared to typical municipal solid waste. Also the age of most of the waste as modeled in the EPA Landfill Gas Emissions Model as part of the Pre-Design Studies clearly demonstrates that the landfill gas peak production has already occurred and will continue to decrease as a function of time. As a result of all these items together, the passive landfill gas venting system is appropriately based on known convective flow theories and design practices.

A conference call was held between Jon Peterson (EPA), Liz Bartz (EarthTech) and Robert Gibson (Woodward-Clyde) on July 29, 1997 to discuss landfill gas monitoring issues. To monitor for lateral landfill gas migration after the landfill cover has been completed, the Group will add one gas monitoring probe on each side of the landfill for a total of four (4) probes. The design of the probes will be included on Sheet 8 of the drawings and locations indicated on Sheet 7. Monitoring of the probes will be done on a quarterly basis and be monitored only for methane and hydrogen sulfide. It was agreed that EPA will allow for the abandonment of monitoring activities and appurtenances associated with these probes if the levels of explosive gases do not exceed the proposed limit after four (4) quarters of monitoring.

APPENDIX C CONSTRUCTION QUALITY ASSURANCE PLAN

EPA Comment 9: *Throughout this section, references are made to performing work as outlined in the "Project Specifications". Could you please reference the specific "Project Specification" for easier review and reference?*

Group Response: This comment will be addressed in the revised submittal.

EPA Comment 10: *Page 4-2, Section 4.3 QC Personnel Qualifications and Responsibilities: Do you feel a need to approve or disapprove of the Geosynthetic testing laboratory? "The Group" has apparently pre qualified four laboratories.*

Group Response: Per the July 29, 1997 conference call with EPA and EarthTech, Mr. Peterson indicated that this comment was an internal question between EarthTech and EPA and was inadvertently included in the letter. EPA indicated that approval of the geosynthetics testing laboratory would not be required.

EPA Comment 11: *Page 4-5, 2nd paragraph: What is the "project manual" that is referred to in this paragraph?*

Group Response: The term "project manual" will be replaced with "Appendix E of Final Design Document".

EPA Comment 12: *Page 4-5, Section 4.5.1 Waste Consolidation, last paragraph: Again, the "Contractor's site-specific Health and Safety Plan" should be sent to the U.S. EPA for review and comment.*

Group Response: This comment will be addressed in the revised submittal.

EPA Comment 13: *Page 4-8, Shipment, Storage and Handling: How are the Installer and the QC Personnel going to determine if there are defects without unrolling the rolls?*

Group Response: If damage is observed to the exterior of the roll, a closer examination will be completed by unrolling the roll.

EPA Comment 14: *Page 4-14, last bullet: Is this supposed to read "previously tested and rejected..."?*

Group Response: Yes. This comment will be address in the revised design submittal.

EPA Comment 15: *Page 4-16, Soils, 4th bullet: The bullet states that a "minimum thickness of 3 feet of soil is required between rubber-tired vehicles and the Geosynthetic membrane." Only 2 feet of soil is specified to be placed on top of the Geosynthetic membrane (18" cover soil, 6" topsoil). In addition, this is inconsistent with Page 4-18, 1st paragraph. Please resolve.*

Group Response: The 4th bullet will be modified to read "a minimum thickness of two feet of soil is required between rubber-tired vehicles and the flexible membrane liner.

APPENDIX D DRAFT OPERATIONS AND MAINTENANCE PLAN

EPA Comment 16: *Page 3-1, Section 3.1 Groundwater Monitoring Modifications: The proposed abandonment of MW11SG and MW13SG appear to be sensible. Neither of these wells were included for sampling per the SOW.*

Group Response: No response required.

EPA Comment 17: *Figure 4, Annual O&M Monitoring Well Location Map: Please add the following wells to this map to be consistent with the SOW: MW09SB.*

Group Response: This comment will be incorporated into the revised design submittal.

EPA Comment 18: *Table 1-1, Summary of O&M Sampling and Analysis Program: Drinking Water Wells - Please add TAL metals to the laboratory parameters. Also specify that these are for low concentration TCL and TAL.*

Groundwater (Annual) Monitoring Wells - The number of total investigative samples should be 18 (for one quarter of every year, the quarterly wells are analyzed for the entire annual list). The number of duplicates should be 2. The total number of samples changes accordingly.

Groundwater (Five Year Review) Monitoring Wells - The number of total investigative samples should be 18 not 17 per the SOW.

Landfill Gas Migration Monitoring Well (Quarterly) - This should read Landfill Gas Migration Gas Probes. If gas probes are installed approximately 200 feet apart along the perimeter, this will total approximately 20 gas probes for analysis of methane.

Group Response: TAL metals will be added to Drinking Water Wells in Table 1-1. The number of investigative samples does not need to be revised from 17 to 18 since MW02SB is listed twice in Table 1 of the SOW (Page 5). The landfill gas monitoring probes will be added to this table as defined in the response to EPA Comment 8.

EPA Comment 19: *Page 3-5: Section 3.3 Landfill Gas Monitoring Program: The landfill gas monitoring program should be designed to detect the off-site lateral migration of methane gas. See previous comments, specifically, Appendix B. Please modify the Landfill Gas Monitoring Program accordingly.*

Group Response: See response to EPA Comment 8.

EPA Comment 20: *Page 4-1, Section 4.1.1, Site Entrance, Fence and Access Road: History has indicated that trespassers break into the gates and perimeter fence on a regular basis. The integrity of the fence and gates should be inspected on a quarterly basis during groundwater and landfill gas monitoring.*

Group Response: This comment will be incorporated in the final design submittal.

EPA Comment 21: *SOP-03, Sample Custody Protocols and Field Documentation: Page 3, Typically, EPA specifies that samples will be preserved to 4° C.*

Group Response: This comment will be incorporated in the final design submittal.

EPA Comment 22: *Table SOP 3-1: Are the metals going to be filtered? Since the Group is sampling with low flow sampling techniques, they may want to consider NOT filtering the metals samples.*

Group Response: Groundwater samples are proposed to be filtered for metals so the results are comparable with previous phases of data collection.

EPA Comment 23: *SOP-10, Gas Vent Sampling: Please modify this SOP to include gas probe sampling procedures.*

Group Response: See response to EPA Comment 8. This comment will be incorporated in the final design submittal.

APPENDIX E CONTRACT SPECIFICATIONS

EPA Comment 24: *Please add a table of contents for this appendix.*

Group Response: This comment will be incorporated in the final design submittal.

EPA Comment 25: *The specifications are incomplete. The following sections have not been included. As such, the documents are not ready for bidding.*

Advertisement

Instructions to Bidders

Soils Data

Proposal

Bid Form with Units

Agreement

Performance Bond Requirements

Payment Bond Requirements

General Conditions

Supplemental Conditions, if required

Please add the following specifications to this appendix.

Division 2 - Site Construction

Section 02222 - Grading Layer

Section 02224 - Rooting Zone

Section 02225 - Topsoil

Section 02270 - Slope Protection and Erosion Control

Section 02276 - Silt Fence

Section 02670 - Existing Well Protection

Section 02671 - Well Abandonment

Section 02720 - Storm Drainage Structures and Corrugated Pipe

Group Response: Mr. John Seymour (Woodward-Clyde) discussed the specifications with Jon Peterson (EPA). It was agreed that only the technical specifications are required for submittal in the Final Design package. The up front bidding information will be included when the project is bid.

The comment also requests that several technical specification sections be added. Specifications for Slope Protection and Erosion Control and Well Abandonment will be added to Appendix E. Grading Layer, Rooting Zone, and Topsoil are already included in Section 2220 (Earthwork). Existing Well Protection is included in Section 2115 (Site Preparation). Storm Drainage Structures and Corrugated Pipe is included in Sections 2220 (Earthwork) and 2715 (HDPE).

EPA Comment 26: *Section 02110 Clearing, Stripping and Grubbing, 3.04 Disposal of Debris: The shredded and chipped material should be distributed in thin layers across the site so as not to cause differential settling when they decay. The specs mention burial at the designated on-site locations, yet those "on-site locations" are not specified.*

Group Response: The shredded and chipped material will be distributed to reduce settlement impacts. The location of burial locations will be specified by the Engineer in the field.

EPA Comment 27: *Section 02212 Drum Removal and Disposal, 1.03 Description of Work: The description of work references a location on the drawings where approximately 200-400 drums shall be removed. The drum excavation exercise noted in the SOW does not restrict drum removal to only this location. It does indicate that drums shall be removed from the former TP09 area and also states "In addition, all other structurally sound drums containing solid or liquid wastes encountered during consolidation or site preparation shall be removed to the staging area for characterization. Hence, the drum excavation, removal and sampling may not be able to be performed in a single 10 working day period.*

Group Response: EPA Comment 5 indicated that specification Section 02212 was not provided in the design documents, yet this comment provides a review of the specification in question.

The TP-09 drum excavation area is to be excavated in a single 10-day period. This does not suggest that all drums on site must be removed in this time frame. Any drums encountered in other portions of the landfill will be addressed during the rough grading activities. The purpose of specifying the 10 day schedule for the TP-09 area is so that the activity can completed prior to the waste consolidation effort on the eastern side of the landfill and so that the perimeter security

fencing can remain in place promoting an extra safeguard to the excavation site and excavated materials.

EPA Comment 28: *Section 02212 Drum Removal and Disposal, 3.02 Drum Storage, Sampling, Testing and Disposal: Again, the Drum Sampling and Testing Plan should be forwarded to the U.S. EPA for review and comment.*

JON - The laboratory for the RCRA characterization of drum contents has not been specified. Nor is it included in the QAPP.

Group Response: See response to EPA Comment 5. The second portion of this comment was an internal note between EPA and EarthTech that was inadvertently included in the comment letter. Mr. Peterson indicated that the laboratory information for RCRA characterization could be provided to EPA once the construction contractor was identified. The QAPP does not need to be modified at this time.

EPA Comment 29: *3.14 Preconstruction Material Quality Evaluation, A, Type 1 Drain Layer: The testing frequency is inconsistent with that specified on Page 4-19 of Appendix C. Please resolve.*

Group Response: The testing frequency will be revised to reflect the Construction Quality Assurance Plan in Appendix C.

EPA Comment 30: *3.15 Construction Quality Control, B and C: The testing frequencies and test specifications are inconsistent with those specified in Appendix C. Please resolve.*

Group Response: The testing frequencies will be revised to reflect the Construction Quality Assurance Plan in Appendix C.

EPA Comment 31: *Section 02936 Seeding, 1.02 Seed Mixture: Big and Little Bluestream should likely be Big and Little Bluestem.*

Group Response: This comment will be incorporated in the revised design submittal.

VOLUME 2 - HEALTH AND SAFETY PLAN

EPA Comment 32: *There are several inconsistencies noted throughout the plan. Several examples are as follows:*

- *Page 1-1 states the plan has an expiration date of December 31, 2003, yet on Page 3-1, the expiration date is given as December 31, 2005.*
- *Page 4-1 refers to rabid animals and snakes as potential biological hazards, yet Section 4.3 makes no mention of the animals or snakes.*
- *Section 4.4 refers to methane as a flammable hazard, but does not refer to hydrogen sulfide. However, hydrogen sulfide is referred to in other sections (i.e., Section 6.2).*

- *Section 5.6 provides the daily check and the donning procedure for respirators; however, the daily check includes an inspection of the lens for a full face respirator, yet the donning procedures are for a quartermask or halfmask only.*
- *Section 5.7 is entitled: "Project Manager Notification," yet the section only describes notifications of the Site Safety Officer.*
- *Under Section 6.2, action levels are specified for benzene and vinyl chloride. The PEL for benzene is 1 ppm, the PEL for vinyl chloride is also 1 ppm. The action levels are based on Draeger tube results, which are typically associated with a 25 percent error. The action level for benzene is set at 0.5 ppm (which accounts for the error), whereas the action level for vinyl chloride is 1 ppm (which does not account for the error).*
- *Inconsistent use of "shall" and "should". For example, in Section 6.1, the first paragraph requires recording of results; however, under each specific equipment, the recording of readings appears to be non-mandatory (should). In Section 6.4, if action levels are exceeded, the section states that mitigative measures should be investigated (again, infers not mandatory).*

Suggest the plan be reviewed to ensure that inconsistencies are identified and corrected.

2. The plan does not adequately address the requirements of the OSHA HAZWOPER regulations, the Design Specifications, or the Remedial Action Workplan. The following provide some examples:

- *OSHA 1910.120 - general functions and responsibilities of all personnel needed for the site operations. The Project Manager, Corporate Health and Safety Officer, and Site Safety Officer are described, but all other personnel (i.e., employees), and the Engineer (as referenced in the Contingency and Emergency Response section are not included.*
- *Section 01450 Health and Safety (Design Specification)- Fire extinguishers (10 pound minimum capacity) shall be available. There is no mention of whether fire extinguishers will be available for use by Woodward-Clyde personnel or if they are trained and allowed to use such fire extinguishers.*
- *Remedial Action Workplan- Drums of solid and liquid materials are planned for excavation and possible overpack. However, a Spill Prevention, Control, and Countermeasures (SPCC) Plan is not included in the Health and Safety Plan.*

All three documents should be reviewed and the Health and Safety Plan modified to address all the requirements.

3. The following are potential hazards not specifically addressed in the plan, or are not in compliance with Michigan OSHA regulations:

- *Poisonous plants are not addressed under the biological section. Also, historically, bees apparently have been a recognized hazard at the site.*
- *The time frame for injury notification is not specified. While not specifically regulated, it is not clear how Woodward-Clyde intends to comply with the Michigan*

requirement for notification of multiple injuries or a fatality within the legally specified time frame.

- *The plan specifies the use of the OSHA Poster, not the Michigan Safety and Health Poster.*
- *The use of a utility locator service is not addressed in the plan. The plan should include reference to the contacting of MISS DIG (Michigan's utility locator service) prior to digging.*
- *Physical information on the anticipated chemicals are not provided.*
- *Michigan (MIOSHA) regulations state that areas with an atmosphere which exceeds 10 percent of the LEL are considered hazardous. Throughout the Health and Safety Plan, the hazardous atmosphere is defined as greater than 20 percent of the LEL.*
- *The Emergency Response plan shall include the provisions of the OSHA Emergency Action and Fire Prevention Plans. Several provisions are missing, including:*

  (1)actions in the event of severe weather (i.e., tornadoes, lightning, flooding);

  (2) potential fire sources and methods of control to minimize the risk of fire.; and

  (3) specific employee responsibilities under the plans.

4. *Miscellaneous comments:*

- *The phrase "chemical data sheets" is used in Section 4.1.1. What are these?is the intent to incorporate the requirements of OSHA 1910.120 in regards to the chemical and physical properties of the hazardous substances at the site?*
- *Section 4.5. Various discussions on relative anticipated risk (i.e., not expected) with no written explanation as to how the relative risk was determined.*
- *A clear organizational structure is not apparent as required by OSHA.*
- *What is the Hazardous Waste Incident Report? This section apparently requires ALL personnel (Woodward-Clyde and any subcontractors) to use this report for any incident or injury. If this is the case, suggest inclusion of the Report in the Model Plan.*
- *Section 5.6 states that as part of the respirator cleaning process, that the respirator be sprayed with acetone. Manufacturer's typically do not recommend the use of solvents in the cleaning or respirators, since it can result in cracking of the face piece, or fogging of the lens. Recommend that the manufacturer of the respirator(s) be contacted as to the cleaning with acetone or that acetone no longer be used.*
- *Section 4.1.1 states that the landfill contains numerous organic contaminants, including 10 VOC's, 19 semi-volatiles, 11 pesticides/PCBs, etc. Section 6.1 states that a PID with a 10.2 eV lamp may be used. However, it is unclear how the decision to use a 10.2 eV (vice an 11.7 eV) was arrived at, when apparently only 4 of the 29 VOC/SVOC's are listed under Section 4.1.1.*

- *Section 6.7 states that no elevated VOC's have been detected in the breathing zone during monitoring well installation. However, the source of this presumed previous monitoring data is not referenced.*
- *Section 6.3.1 requires fence line sampling for specific VOC compounds; however, the procedure to determine which compounds to sample, and how to sample, is not provided.*
- *Section 6.3.3 requires the use of a PID for fence line monitoring. The reasoning for use of a PID is not provided and the method for quarterly methane monitoring is not provided. Also, no mention is made of hydrogen sulfide.*
- *The action level section (Section 6.2) does not provide for action levels for the required perimeter monitoring.*
- *Review of Section 7.1 indicates inconsistencies in the selection of personnel protective equipment. For example, rubber boots and Saranex® coated Tyvek® are specified under modified level D. However, rubber is not recommended for some of the chemicals of concern (i.e., xylene(s), acetone), and Saranex® is not recommended for some of the chemicals of concern (i.e., acetone). Recommend that Section 7.1 be reviewed and modified as necessary to ensure selected PPE is compatible with all the chemicals of concern.*

Group Response: As indicated in the response to EPA Comment 6, the model health and safety plan presented in the design documents is very similar to the plan included in the Remedial Design Work Plan for Pre-Design field activities. The original model health and safety plan was reviewed and approved by EPA without comment. The Group will review all of the new comments on the health and safety plan and address necessary changes in the revised design submittal.

VOLUME 3 QUALITY ASSURANCE PROJECT PLAN

EPA Comment 33: *Page 1-2: almost entire page. The previous comments on the groundwater monitoring well sampling scheme apply here also. The previous comments on the landfill gas sampling network apply here also.*

Group Response: This comment will be incorporated in the revised design submittal.

EPA Comment 34: *Page 1-9, Section 1.5.2 Site Maps of Sampling Locations: Modifications to the groundwater sampling locations may be made if approved by U.S. EPA.*

Group Response: This comment will be incorporated in the revised design submittal.

EPA Comment 35: *Page 2-1, Section 2.2.1 U.S. EPA Remedial Project Manager, 2nd sentence: RPM changed from "she" to "he".*

Group Response: This comment will be incorporated in the revised design submittal.

EPA Comment 36: *Page 7-2, Section 7.2.1 List of Project Target Compounds and Detection Limits: While arsenic is the main focus of the groundwater contamination problem, vinyl chloride also exceeded it's MCL.*

Group Response: Vinyl chloride did not exceed the MCL during the most recent groundwater sampling event completed during the Pre-Design Studies field investigation (See Table 4 and 5 of the Pre-Design Studies Report).

EPA Comment 37: *Table 7-6, Targeted Quantitation Limits Landfill Gas, Page 22 of 26: The sensitivity of the field instruments capable of measuring carbon dioxide and methane should be capable of at least the TLV or PEL.*

Group Response: Field instrument sensitivities for carbon dioxide and methane will be added to Table 7-6.

FINAL DESIGN DRAWINGS

EPA Comment 38: *Sheet 2: With regards to the reference to the edge of waste in General Note 4, the edge of waste is not shown on this drawing.*

Group Response: The edge of waste will be added to Drawing 2.

EPA Comment 39: *Sheet 4:*

Section C (3/4), Landfill Cover System - Why is the gas collection/drainage layer not shown? Is there any existing cover on the waste? If yes, how thick? Why is it not shown in the cross-section?

Section D (3/4), Typical Anchor Trench - How does this section relate to the waste boundary?

Group Response: The gas collection/foundation layer will be added to Section C. The drainage layer has been replaced by the synthetic drainage net. The existing landfill cover materials vary too much in thickness to be represented accurately in the section.

The edge of waste is depicted as being 2'-0" (minimum) inside of the FML anchor trench.

EPA Comment 40: *Sheet 5: The following details were not found on Sheet 6; Detail 1 (5/6), Detail 2 (5/6), and Detail 4 (5/6).*

With regards to the perimeter drain, it is unclear from the drawings which nodules are tee connections with outlets. If all have outlets label (detail) as typical and draw outlet pipe of each nodule to show length.

Group Response: The details will be re-numbered to correlate with the Drawings. The outlets will be noted in each location around the perimeter subdrain system.

EPA Comment 41: *Sheet 6: Section E (6/6) - The FML ends at perimeter drain; however, there are several locations where perimeter drain is within waste boundary. FML should extend*

beyond waste boundary before anchor is installed. Section E (6/6) requires modification as additional section drawn to show waste boundary.

Group Response: Section E will reflect the edge of waste as well as the associated plan view above it to include the edge of the FML. Both will be consistent with the sections indicated on Sheet 4.

EPA Comment 42: *Sheet 7: The gas system does not provide for penetration into the landfill but relies on the generated gas rising to the surface where it is collected and discharged. Gas pressure will relieve itself in the direction of least resistance--this could be laterally. Considerations should be given to placement of gas probes around the perimeter of the landfill to verify there is no lateral gas migration and the system is effective in containing and controlling the generated gas. After sampling has established no lateral migration, it could be discontinued.*

Group Response: The design specifies four feet of penetration into the waste. See the response to EPA Comment 8 for further a response to landfill gas monitoring issues.

EPA Comment 43: *Sheet 8:*

Detail D - Stainless steel clamps are recommended.

Detail C - It is difficult to understand end cap requirements. Additional detail would be helpful.

Group Response: Detail D will note clamps as 316 stainless steel. Detail C will be clarified by moving the flex coupling and stainless steel clamp notes to the proper location on the drawing.

EPA Comment 44: *Sheet 9: Detail 3 - Suggest rip rap around inlet and outlet to RCP beneath roadway to control erosion.*

Group Response: Small diameter rip rap will be added to the inlet and outlet ends of the culvert.

EPA ADDITIONAL COMMENTS ON ITEMS OMITTED FROM DRAWINGS

EPA Comment 45:

Detail for Warning Sign to be posted on fences.

Reference was made to textured FML and smooth FML. The drawings should reflect where textured is to be installed and where smooth is to be installed.

The plans are lacking dimensions and detail, they are labeled "not for construction." They are therefore not in a form that is biddable.

Group Response: A detail for the warning signs to be posted on fences will be added to the perimeter fence plan and detail sheet.

All FML placed is to be textured and will be consistently noted throughout the drawings.

Final design drawings have been submitted. The drawings are of sufficient detail to move into the construction phase. The term "not for construction" will be removed once the project bid documents are prepared.

SPECIFICATIONS

EPA Comment 46: *Specifications are incomplete. The following sections have not been included. As such, the documents are not ready for bidding.*

Advertisement

Instructions to Bidders

Soils Data

Proposal

Bid Form with Units

Agreement

Performance Bond Requirements

Payment Bond Requirements

General Conditions

Supplemental Conditions if required

Group Response: See response to EPA Comment 25.

EPA Comment 47: *Section 0293C, 3.05, Planting Season needs to be filled in. Suggest May 1 to October 10 (MDOT), Section 8.16.03 C4.*

Group Response: This comment will be incorporated into the revised design submittal.

EPA Comment 48: *Earthwork 0220-4, 1.06, Mobility A - omit "relatively"*

Group Response: This comment will be incorporated into the revised design submittal.

EPA Comment 49: *References: add AASHTO and ASTM*

Group Response: This comment will be incorporated into the revised design submittal.

EPA Comment 50: *Section 3.13 - pipe culvert to be laid to elevation on drawings..... Drawings show no elevation.*

Group Response: Pipe elevation will be added to the drawings.

EPA Comment 51: *Materials: No gradation specified for gas collection stone layer. Recommend gradation with loss by wash (#200 sieve) and indication of type of particles allowed similar to Type 1 drainage.*

Group Response: This stone layer consist of 1-1/2 inch minus washed stone material and testing requirements imposed will be submittal of typical gradation data by the contractor for the proposed borrow source. Approval of the borrow source for suitability will be at the discretion of the Engineer. The applicable Technical Specification will be updated with this requirement in the revised document.

EPA Comment 52: *Gas collection layer does not function as a gas collection layer unless vertical pipes are perforated within the layers. Suggest vertical perforated pipe and washed stone to within 4.0 inches (plus or minus) of the FML.*

Group Response: The gas collection system risers are perforated within the horizontal gas collection trench which extends four feet into the waste mass. The perforations will be tied into the 12-inch gas collection layer.

EPA Comment 53: *Quality Assurance/Quality Control*

Tests, methods and requirements are numerous. A table should be prepared that summarizes all required tests. It should include tests. It should include test description, method description, frequency and requirements.

Group Response: All elements that require testing are outlined component by component in the Construction Quality Assurance Plan and do include the test method required, frequency and minimum allowable tolerances.